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**COUNTDOWN ACID RAIN
GOVERNMENT REVIEW OF
THE 15TH PROGRESS REPORTS
(JULY 31, 1993)
BY ONTARIO'S FOUR MAJOR SOURCES
OF SULPHUR DIOXIDE**

OCTOBER 1994

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Countdown and rain -
representation review at the fifth
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EXECUTIVE SUMMARY

This is the review of the four Countdown companies' 15th semi-annual progress reports, which are required to be submitted under Ontario's acid rain regulations. Each of the four sources has met the legal limits for sulphur dioxide (SO_2) and acid gases(SO_2 plus nitric oxide (NO)) to date and are in the process of implementing their planned abatement programs to meet 1994 SO_2 emission targets. Reports were submitted to the Minister of Environment and Energy prior to July 31, 1993 and cover the period January 1 to June 30, 1993.

INCO LIMITED

In the first half of 1993, Inco estimated its SO_2 emissions to be 214 kt. The mills rationalization program completed in 1991 is currently operating at its design rate. With the process changes currently implemented, Inco's 1993 SO_2 emissions from its Sudbury operations are expected to be lower than those of 1992 (420 kt). Inco's new oxygen flash smelting furnace is operating satisfactorily. The MK reactor for smelting copper concentrate was commissioned in March 1993 and is operating at the design rate of 50 tph since May 1993. The company produced 146 kt of sulphuric acid and 46 kt of liquid SO_2 from SO_2 captured from off-gases generated by the new smelting technologies. The report also indicates that the 1994 SO_2 emissions should be within the regulation limit of 265 kt.

FALCONBRIDGE LIMITED

In the first half of 1993, the company estimated its SO_2 emissions to be 26.2 kt. The company reaffirms its current operational capability to meet the 1994 annual SO_2 emissions target of 100 kt at the smelter rated capacity. In 1993, the #1 fluid bed roaster hearth was increased to permit higher sulphur removal rates from the concentrate. During the first six months of 1993 the fluid bed roasters removed 63% of the sulphur entering the smelter and 96% of this sulphur (as SO_2) was fixed in the acid plant as commercial grade sulphuric acid. The company is continuing tests on lower sulphur calcine in the electric furnace and increased sulphur rejection in the mineral processing circuit to further lower SO_2 emissions from this facility. The company has so far invested \$32.0 million in the Strathcona mill, smelter and R & D programs. These changes coupled with the proposed research program should enable Falconbridge to meet its voluntary SO_2 emissions target of 75 kt at the smelter rated capacity before 1998.

ALGOMA STEEL INC.

Algoma's SO₂ emissions from its sinter plant at Wawa for the first 6 months of 1993 were reported to be 28.0 kt and annual SO₂ emissions for 1993 are expected to be about 55 kt. The report indicates that the company plans to produce 1.05 million tonnes of sinter by using iron ore mined at Wawa and increased amount of lower sulphur iron oxides, mill scales, and other iron/steel industry by-products as sinter plant feed which will lower SO₂ emissions from this facility. The company has received conditional approval from the Ministry to process up to 700,000 tonnes per year of reverts from outside steel mills as feed for the sinter plant. The company claims that this change would reduce both SO₂ and particulate emissions.

ONTARIO HYDRO

Ontario Hydro's SO₂ and acid gas emissions for the first half of 1993 were estimated to be 61.2 kt and 83.6 kt respectively. Both SO₂ and acid gas emissions were lower by 42% and 40% respectively than that for a similar period in 1992. Fossil fuelled electricity generation was also 39% lower during this period. In the first 6 months of 1993, Hydro spent \$116 million on measures contributing to acid gas control. A major part (>90%) of this acid gas control expenditure was for premiums on low sulphur coal purchases and the Lambton flue gas desulphurisation (FGD) project. The Lambton FGD program is within budget and on schedule and commissioning is planned for early 1994. The flue gas conditioning (FGC) systems at all stations have been operating at the boiler design capacities without environmental problems and opacity exceedences. Hydro plans to install combustion process modifications (CPMs) at Lambton Unit #4 by 1994 and the remaining 3 units will be equipped with CPMs between 1994-96. When all CPMs at Lambton have been implemented, a 30% reduction in NOx emissions from this facility is expected.

INTRODUCTION

Four major corporate sources (Inco, Falconbridge, Algoma at Wawa, and Ontario Hydro) produce about 80% of Ontario's sulphur dioxide (SO_2) emissions. Each source is required by Ontario's Countdown Acid Rain regulations to report every six months on the progress made to reduce SO_2 emissions.

The Countdown program was formulated in 1985 and requires an annual SO_2 emissions cap of 885 kt on all sources in the province, to be in place by 1994. Specific reductions for the four companies began in 1986 and will culminate in a cap totalling 665 kt of SO_2 by 1994. In the case of Ontario Hydro, limits were also placed on the combined emissions of SO_2 and nitric oxide (NO) and an interim cut of 35%, limiting SO_2 to 240 kt and acid gases ($\text{SO}_2 + \text{NO}$) to 280 kt, was also imposed for 1990-1993. The Countdown limits are in addition to standards imposed to ensure good ambient air quality. Annual legal limits are summarized in Table 1.

Table 1
Sulphur Dioxide Legal Limits
(thousands of tonnes per year)

	<u>1985</u>	<u>1986</u>	<u>1990</u>	<u>1994</u>
Inco nickel/copper smelter, Sudbury	728	685	685	265
Falconbridge nickel/copper smelter, Sudbury	154	154	154	100
Algoma iron ore sintering plant, Wawa	285	180	180	125
Ontario Hydro fossil fuel power plants, province-wide	390	370	240	175
Legal Limits Sub-total:	1,557	1,389	1,259	665

Each of the four sources has met the legal limits to date and each has submitted detailed plans for implementing its reduction program, as required by the regulations. The sixth set of company progress reports, received in December 1988 and January 1989, set out the detailed methods and schedules for meeting the emission limits of the Countdown regulations. They were accepted by the government.

Implementation progress reports are required every six months. This document summarizes the contents of the 15th set of semi-annual company reports and the government response. Previous semi-annual reports are available from the Public Affairs and Communications Services Branch, Ontario Ministry of Environment and Energy, 135 St. Clair Avenue West, Toronto, Ontario, M4V 1P5, (416) 323-4321.

COMPANY REPORTS AND GOVERNMENT RESPONSES

The progress reports were reviewed by the Countdown Technical Support Group (CTSG) drawn from the Ontario Ministries of Environment and Energy and Northern Development and Mines (for the metallurgical companies).

The implementation phase of the Countdown program is progressing very well. A summary of the individual reports and the Ontario government's response follows.

INCO LIMITED

Regulation 660/85 requires a reduction in annual SO₂ emissions from Inco's nickel/copper smelter complex in Sudbury so that emissions will not exceed 265 kt for any year after 1993, compared to the current limit of 685 kt per year. The company was also required to examine the feasibility of going beyond the limit of 265 kt by 1994 specifically to a level of 175 kt at some future date. Consequently, the feasibility of continuing technical advances remains a concern of Inco and of the government. The government previously accepted Inco's position that a specific interim reduction prior to 1994 was not feasible because of the nature of the major process changes being undertaken to meet the 1994 sulphur dioxide emission limit.

Company Report

The company's 15th progress report covering the period January to June 1993 presents the following points:

- Implementation of the Sulphur Dioxide Abatement Program (SO₂ AP) is continuing, as detailed in the report of December 1988 to meet the annual SO₂ emissions target of 265 kt after 1993. Smelter SO₂ AP costs have been revised to \$540 million with the total SO₂ Abatement Program projected to cost about \$612 million.
- The Mills Rationalization Program was completed in 1991. Inco had indicated earlier to the CTSG that full benefits of this program will be realised when bulk concentrate smelting becomes fully operational in 1994.
- The construction schedule shows that all planned work detailed in the company's 6th semi-annual report (December, 1988) will be completed by December of 1993. The report also indicates that the Smelter Construction Program is about 96.6% completed as of May 1993. The second flash furnace and associated concentrate drying and off-gas cleaning equipment is expected to be completed in fall of 1993.

- The company is confident that it can meet the regulated SO₂ emission limit of 265 kt in 1994.
- In the first half of 1993, \$27 million was spent on the smelter SO₂ AP bringing total expenditures to \$508 million. To date, a total expenditure of \$580 million has been incurred on the sulphur dioxide abatement program (SO₂ AP) and the Mills Rationalization project.
- During the January-May 1993 period, the combined manpower dedicated to SO₂ AP ranged between 330 to 400 persons in engineering, construction and management areas.

Operation of Phase I Facilities:

- Operation of the Semi-Autogenous Grinding (SAG) mill, a key component in the Mills Rationalization Program, improved steadily in the latter part of 1992 and throughput approached design capacity. The Mills Rationalization program is operating as planned but separate streams of nickel and copper concentrates are still provided for smelting until such time as both new flash furnaces and the MK reactor are in operation.
- The first (# 2 Flash furnace) of the two new oxygen flash furnaces, together with major ancillary facilities, was commissioned in October 1991 and is now operating well. The furnace throughput rate during this period averaged 1900 tons of concentrate per operational day.
- # 2 Flash Furnace technical problems reported in the 13th progress report were resolved and matte, slag and off-gas temperatures were appropriate to maintain a stable bottom build-up. The furnace roof design will be changed from "arch" to "suspension" type design due to skewness resulting from improper brick tolerance and expansion allowances.
- The new double contact acid plant and the ancillary gas cleaning system built for fixing SO₂ from the nickel flash smelting operations have been operating satisfactorily. In the first half of 1993 SO₂ fixation has resulted in the production of 146 kt of sulphuric acid and 46 kt of liquid SO₂. Both of these by-products are marketed by Inco.

Phase II: SO₂ Abatement Program

- Phase II construction work is on schedule and is nearing completion.

SECOND FLASH FURNACE START-UP (NO. 1 FURNACE)

- The majority of tie-ins to the existing facilities will be completed during the July 1993 shutdown and testing of the second flash furnace and associated drying and gas cleaning equipment is to commence in August 1993.

MK REACTOR

- The MK reactor for processing copper sulphide (Cu_2S) concentrate from Matte separation was commissioned in March, 1993. The major start-up difficulty was the contamination of sulphuric acid by-product with high nitric acid levels. This and other technical problems were overcome and design injection rates of up to 50 tph were achieved. About 5200 tons of MK material was processed in the reactor in May 1993.
- The MK reactor start-up also encountered mechanical, electrical and instrumentation problems. Improper instrumentation settings on oxy-fuel burners resulted in significantly higher NO_x levels (> 90 ppm) instead of acceptable level of 5 - 10 ppm in the by-product sulphuric acid. Improvements were made by bleeding a portion of demister acid but still NO_x levels remained at 15 - 25 ppm somewhat above product acid specification. After these modifications the MK reactor was tested for three months and several thousand tonnes of MK (copper sulphide) material were processed.
- Injection of dried copper sulphide (Cu_2S) directly into molten copper has resulted in very low dusting rates. A small amount of dust collected in the ESP was difficult to handle. The ESP power has been turned off and the dust leaving the ESP is now caught in the wet scrubber and the scrubbing solution is pumped to the Clarabelle Mill for neutralization and recovery.

Government Review

The government review concluded that Inco continues to meet the requirements of Regulation 660\85.

SO₂ Emissions

- SO₂ emissions for the first half of 1993 were estimated by Inco to be 214 kt. This is 11% below the same period in 1992.
- Lower SO₂ emissions are also likely in 1993 as the second Flash Smelting furnace (#1 furnace) and MK Reactor are put into service.

Mills Rationalization

- The Ministry is pleased to know that Inco has completed this program successfully and that it is operating as planned.

Smelter

- The Ministry is also pleased to note that Inco has completed the construction of the new # 1 Flash furnace and the unit is now tested and commissioned. The CTS members would like to be apprised of the changes in the flash furnace roof design from "arc" to "suspension" type and any impacts on furnace operation. The Ministry requests to be informed when the bulk smelting operation commences and any technical and operational problems resulting from the switch over.
- The Ministry is satisfied that the progress of construction work on the bulk concentrate furnace, (i.e., No. 1 Flash Smelting Furnace) is on schedule.

SO₂ Fixation:

The newly built double contact acid plant and associated gas cleaning system operated without any serious technical problems. In the first half of 1993, the acid plant and the liquid SO₂ plant captured 146.3 kt of SO₂ from the new flash furnace and MK reactor off gases. When the new smelting process is on bulk concentrate the flash furnaces will not run if the acid plant is not operating properly. This will provide protection to the environment from elevated SO₂ emissions due to possible upsets from nickel and copper concentrate smelting operations.

General Comments

- The Ministry noted that overall Inco's 15th semi-annual progress report was brief and did not provide sufficient details in the following areas:
 - (i) information on sulphur mass balance and updated process flow sheets based on new bulk smelting technology
 - (ii) schedule for switching to bulk smelting from current method of operation
 - (iii) further progress in R and D areas related to continuous converting and fluid bed matte processing roaster(s) off gas cleaning reported in the 14th semi-annual progress report (Jan. 31, 1993).

- The Countdown Technical Support Group (CTSG) requests that Inco modify its progress report format and provide more detailed information on areas of interest to the Ministry in their future semi-annual reports. As required by Regulation 660/85 Inco is to investigate the possibility of reducing annual SO₂ emissions to 175 kt from its Sudbury smelting operations.
- The CTSG is expecting to discuss those areas of interest in a meeting and tour of facilities in 1994.

FALCONBRIDGE LIMITED

Regulation 661/85 requires Falconbridge to reduce its annual SO₂ emissions from its Sudbury nickel-copper smelter complex so as not to exceed 100 kt after 1993. The regulation also requires Falconbridge to evaluate the possibility of further reducing SO₂ emissions. Promising areas for further reductions have been identified by the company.

Company Report

The 15th semi-annual progress report, covering the period January to June 1993, presents the following points:

- The company reaffirms its earlier commitment to meet the 1994 annual SO₂ emission limit of 100 kt at a rated capacity of 88 million pounds of nickel as concentrate. This emission reduction achievement was the result of technical and operational developments by the company such as improved pyrrhotite (Po) rejection, increased degree of roasting and sulphuric acid production, enhanced slag cleaning operation, separate copper concentrate production, and increased smelting of recycled materials. The company claimed to have achieved the operational capability of meeting its 100 kt SO₂ emissions annual limit 3 years earlier than required by Regulation 661/85.
- Falconbridge will continue to invest capital in the Strathcona Mill and smelter, and conduct research and development in promising areas. This investment will enable the company to meet its voluntary SO₂ emission target of 75 kt at the smelter rated capacity before 1998.
- In the first half of 1993, the company emitted about 26 kt of sulphur dioxide.
- The fluid bed roasters removed on average 63% of the sulphur entering the smelter. Also 96% of this sulphur (as SO₂) was captured in the single contact acid plant converting it to commercial grade sulphuric acid.
- The report also indicates that the capital budget for the process modifications over the period 1989-1993 is estimated at \$25.6 million for capital projects and \$12.00 million

for research and development in support of the company's SO₂ abatement program. The total capital and R & D expenditures to date exceed \$32 million.

- The report further notes that in spite of lower international nickel prices, the company does not anticipate any changes or delays in achieving its voluntary SO₂ emission target of 75 kt/year at the smelter operational capability by 1998.
- Except for some changes in the acid plant, all other planned smelter modification projects are expected to be in service before the end of 1993 as per current schedule.
- **Smelter/Roaster design and operating changes**
 - # 1 roaster hearth size was increased from 5.6 m to 6.1 m. during the July 1993 shutdown to provide higher quantities of fluidizing air.
 - # 1 roaster fan will be mechanically upgraded in air flow capacity before 1994.
 - In the acid plant, rehabilitation of two mist precipitators will be completed by the end of 1993. It is expected that this change will improve gas cleaning system performance.
 - The installation of an auto-fettling system on #2 electric furnace to improve feed distribution and temperature control was to be completed by July 1993. Some changes will also be made to tap holes to provide higher heat removal rates and to monitor wear by using high conductivity refractories.
 - Additional modifications to selected pieces of equipment in the roasters, the acid plant and smelter areas are planned for implementation after 1993 to improve smelter performance and reduce SO₂ emissions.
- **Strathcona Mill Modifications**
 - The upgraded regrinding circuit was optimized to handle increased tonnage from 75 to 100 tonnes per hour without affecting product size.
 - New magnetic separators which were commissioned in early 1993 are treating secondary rougher concentrate with pyrrhotite removal of 85-90 % which would have gone to nickel concentrate.
 - Construction of Phase III to install larger flotation cells to improve scavenger material flotation will be carried out after 1993. The total cost is estimated to be \$3.8 million.

- **R and D Program**

1. Smelter: Based on results from Ontario Hydro's pilot furnace, electric furnace operating parameters for the two electric furnaces, will be changed to provide lower bottom build-up and about 18% metallization. The company is hopeful that this can be achieved by the end of 1993. This is a key component for processing calcines having low sulphur content.
2. Strathcona Mill: Further work is continuing in the mineral beneficiation areas particularly in developing new flotation agents and their combinations to improve in pyrrhotite (Po) rejection and concentrate upgrading at a pilot plant level. Both higher nickel concentrate and acceptable discard grades of pyrrholite (Po) have now been produced.
 - Recent surveys of the Strathcona Mill flotation circuit indicated that 85% of Po in the feed is now reporting to the Po rejection circuit as compared to 68 - 73% previously.

Government Review

The Countdown Technical Support Group (CTSG) concluded that the company's 15th semi-annual progress report met the requirements of Ontario Regulation 661/85. The CTSG is pleased with the technical progress Falconbridge has achieved in meeting its SO₂ emissions limit of 100 kt at design smelter production capacity three years ahead of schedule. The CTSG is further encouraged to note that continuing investments in R & D and capital projects will likely enable Falconbridge to achieve its SO₂ emissions goal of 75 kt/yr at the smelter design capacity earlier than 1998.

Additional CTSG comments are as follows:

- The CTSG is pleased to know that the company has managed to increase Nickel concentrate grade from 6.8 to 9.0% over the period 1990 to 93 without increased nickel losses in the Po discard portion.
- As of June 1993 the company has spent \$32 million in capital projects and R and D areas. However, the reported capital expenditure of \$3.1 million for 1993 cannot be readily identified in Fig. 3.1 of the company's July 1993 report.
- The company continues to provide updated flowsheets on various process changes; these and the sulphur balance information are helpful in understanding the reported changes and in following the progress of the company's SO₂ Abatement Program.

- The company's preferred route to continue making process changes under the existing blanket certificate of approval issued in 1989 is considered unacceptable to the Ministry since the time frame for these changes goes beyond 1994. Also, the Ministry at present does not provide blanket experimental Certificates of Approval (C of As) for testing or studies.
- CTSG members are also pleased with the company's R and D efforts and the capital program proposed in these difficult economic times to provide additional environmental benefits before 1998.

ALGOMA STEEL INC.

The Algoma Steel Inc. (Ore Division) operates an iron ore sinter plant at Wawa, about 270 km northwest of Sault Ste. Marie. Regulation 663/85 limits current SO₂ emissions from the operation to 180 kt per year, dropping to no more than 125 kt per year effective 1994.

In August of 1986, the sinter production capacity at Wawa was permanently down-sized by about 50 per cent. When combined with reduced sulphur levels in the feed, this has resulted in substantially reduced SO₂ emissions.

Company Report

The company's 15th semi-annual progress report covering the period January to June 1993 confirms that the company will meet the 1994 SO₂ emission limit by the reduction of sinter capacity. In addition, continued and possibly increased use of low sulphur iron oxides at Wawa could further reduce current levels of SO₂ discharged from the sinter plant.

The 15th semi-annual progress report also presents the following information:

- In the first half of 1993, the Algoma's Ore Division reported its SO₂ emissions to be 28.0 kt.
- The company forecasts 1993 SO₂ emissions to be about 55.0 kt, at a sinter production capacity of 1.05 million tonnes.
- The company plan indicates that use of low sulphur iron oxides and mill scale in sinter plant feed will be continued and should help to maintain current and projected SO₂ emissions to about 60 kt or less, which is well below the 1994 limit of 125 kt.
- Increased use of reverts could further reduce sulphur dioxide and trace metal emissions from the facility.

Government Review

- The CTSG concluded that the company continues to meet the requirements of Regulation 663/85.
- No changes have been reported in the company's plans to meet the 1994 annual SO₂ emission target of 125 kt.
- The company has provided SO₂ emission estimates for the appropriate review period and included general information on production activity at its Wawa sinter plant as requested earlier.

ONTARIO HYDRO

Regulation 355, R.R.O. 1990 (formerly O.Reg. 281/87) requires Ontario Hydro to meet interim annual emission limits for 1990-93 period and imposes a tighter limit for 1994 and beyond. Separate limits are set for SO₂ alone and for the sum of SO₂ plus NO (nitric oxide), as shown in Table 2.

Table 2
Ontario Hydro's Sulphur Dioxide and
Acid Gas Emissions Limits

<u>Period</u>	<u>Regulated Limits</u>	
	<u>SO₂</u> (kilotonnes per year)	<u>SO₂ + NO</u>
1986 to 1989	370	430
1990 to 1993	240	280
1994 and future	175	215

Company Report

The corporation reports that in the first six months of 1993 acid gas emissions were estimated at 61.2 kt of SO₂ and 83.6 kt of (SO₂ plus NO). The reported SO₂ and acid gas emissions were lower by 42% and 40% respectively than for the same period in 1992. Fossil-fuelled electricity generation was also 39% lower during this period as compared to the first half of 1992.

The corporation reports expenditures of \$116.0 million for the period January to June 1993 on measures contributing to the reduction of acid gas emissions, as follows:

- \$65.0 million was spent for flue gas desulphurization (two FGD scrubbers) for the Lambton Thermal Generating Station (TGS).
- \$300,000 expense was incurred for flue gas conditioning at the Lambton, Nanticoke, and Lakeview stations. This measure allows Hydro to burn lower sulphur coal at these locations until suitable control measures are installed.
- \$5.0 million was spent for combustion process modifications (CPMs).
- \$42.4 million was spent on low sulphur coal premiums, which was partly for acid gas control. This is approximately 37% of the total expenditure reported by Hydro for acid gas control in this report.
- \$2.5 million was allocated for compliance with the emissions verification and reporting order issued by the Ministry in June 1990.
- \$0.7 million was allocated for research and development.
- The report also indicates that the earlier cost estimates of \$537.5 million for installation of two FGD scrubbers using a limestone slurry system at Lambton are still valid. The FGD program is on schedule. The two Lambton scrubbers coal fired boilers # 3 and # 4 are expected to be in-service by 1994.

Acid Gas Control Programs:

- The 15th semi-annual progress report also indicates that the flue gas conditioning (FGC) equipment with sulphur trioxide (SO_3) and ammonia (NH_3) conditioning agents has been working well for all units at Lambton and Nanticoke. The units are currently operating at their maximum continuous rating without other environmental or opacity problems when using lower sulphur coals.
- Lakeview units 1 and 2 are equipped with new high performance electrostatic precipitators (ESPs) and are expected to meet opacity requirements at the boiler design rate when operating with lower sulphur coals. Units 3, 4, 7 and 8 at Lakeview have been removed from service as of April 1993.
- The Corporation is assessing the technical feasibility of implementing nitric oxide (NO) emission controls on existing fossil fuel stations. Hydro's current plans are to complete CPMs for unit 4 at Lambton by 1994 and to retrofit the remaining 3 units with CPMs between 1994-96. Hydro has signed an agreement to participate with some U.S.

utilities to evaluate urea injection and selective catalytic reduction (SCR) technologies for U.S. and Canadian coals.

Emissions Monitoring:

- The report also indicates that Hydro has installed flue gas monitoring devices (FGMs) on most fossil-fuel boilers in order to meet the Ministry's acid gas (SO_2 and NO) emissions verification and reporting order requirements. Many of the systems are currently being commissioned and undergoing verification tests. Hydro plans to start a 6 month comparison study for a typical unit at the Nanticoke TGS to demonstrate the accuracy of SO_2 and NO emission measurements of the FGM systems and the in-stack continuous emission rate monitoring (CERM) unit in October, 1993.
- NO vs. Load Curves: The report indicates that Hydro plans to develop these curves with FGM systems after satisfactory verification tests at each unit. A letter of agreement signed by Hydro and the Ministry requires that NOx vs. load curves for all units be updated before the end of 1994.

Future Capital Projects:

- Hydro's operations are now restructured on the basis of the type of energy production (e.g. fossil, nuclear, hydraulic, etc.) for greater individual accountability and responsibility for unit performance. However, Hydro will be applying a sustainable development approach to all its programs to assess environmental impacts before approving new capital projects.

Government Review

Some points noted by the reviewers are listed below:

- The CTSG concluded that Ontario Hydro's 15th semi-annual progress report meets the requirements of Regulation 355 R.R.O. 1990 (formerly O. Reg. 281/87).
- The CTSG further noted that more than 90% of the expenditures reported for acid gas control measures in the first half of 1993 was for a premium on low sulphur coal purchases and the Lambton FGD project.
- It appears that under the emissions verification and reporting order, Hydro has charged the total cost of this project to the acid gas control program; this needs to be reviewed as several of these FGMs were considered initially to provide increased combustion efficiency by monitoring NO emissions, and would have resulted in fuel cost savings. The Ministry wants Hydro to include only those costs which would not have been incurred for improving combustion process efficiency.

- The CTSG found that Hydro's 15th semi-annual progress report (July 1993) provided less detailed information on areas of interest to the Ministry as compared to the 14th report. The Ministry would like Hydro to provide additional technical and cost details in combustion process modifications and R and D work areas.

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